

A plausible congestion management scheme for the internal electricity market of the European Union

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Abstract-

This paper proposes a scheme for the management of network congestion in the Internal Electricity Market (IEM) of the European Union. This scheme tries to combine the rigor in the treatment of the energy and transmission capacity transactions with the flexibility and pragmatism that are necessary to make the scheme compatible with the current diversity of regulatory approaches and market structures in the Member States participating in the IEM. First a reference scheme is presented with a complete formulation that jointly deals with the energy and capacity markets. Because of the implementation difficulties of this conceptually ideal approach a more pragmatic scheme is proposed instead. The core of this scheme is an explicit auction mechanism that must be run prior to any short-term (daily, typically) energy markets. In this auction, where only transmission capacity is traded, both bilateral contracts and energy bids to Power Exchanges can participate in order to acquire the capacity necessary to carry out their transactions. Some technical issues related to the practical implementation of the proposed approach are also examined; these include market liquidity, the financial or physical nature of the long-term contracts, the potential problems of "slicing" transmission capacity and the allocation of congestion rents. Market power issues are ignored.

Index Terms- congestion management, transmission network constraints, coordinated auction, network utilization, power transfer distribution factors.

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